

Claims

1. Bipolar plate (5) for fuel cells, with the bipolar plate being provided on its surface with a layer (4) of a hydrophobing material soluble in a solvent.
- 5 2. Bipolar plate (5) in accordance with claim 1, with the hydrophobing material consisting entirely or partly of an amorphous fluoropolymer.
- 10 3. Bipolar plate (5) in accordance with claim 1, with the hydrophobing material consisting entirely or partly of a polysiloxane compound or of alkylsilanes, especially alkyl-aryl-silanes or halogen-alkyl-aryl-silanes.
- 15 4. Bipolar plate (5) in accordance with one of the previous claims in which the thickness of the layer (4) is adjusted to an optimum between a low electrical contact resistance to an adjoining electrode (7, 11) and a high hydrophobicity.
5. Bipolar plate (5) in accordance with one of the previous claims, with a thickness of the layer (4) ranging from 0.1 nm to 50 nm.
- 20 6. Bipolar plate (5) in accordance with claim 5, with a thickness of the layer (4) ranging from 0.5 nm to 5 nm.
7. Bipolar plate (5) in accordance with one of the previous claims, with the bipolar plate (5) consisting of a metallic alloy, especially a nickel-based alloy.
- 25 8. Bipolar plate (5) in accordance with one of the previous claims, with a highly-conductive contact layer (6) made of a noble metal, especially gold, between the bipolar plate (5) and the layer (4) made of the hydrophobing material.

9. Fuel cell (1,2) with a membrane electrode unit (3) and, on the electrode side a bipolar plate (5) electrically contacting the membrane-electrode unit (3) in accordance with one of the previous claims.